
Lean & CMMI

Christopher B. Cool
Vice President
Manufacturing, Quality & Lean
Integrated Systems
Northrop Grumman Corporation

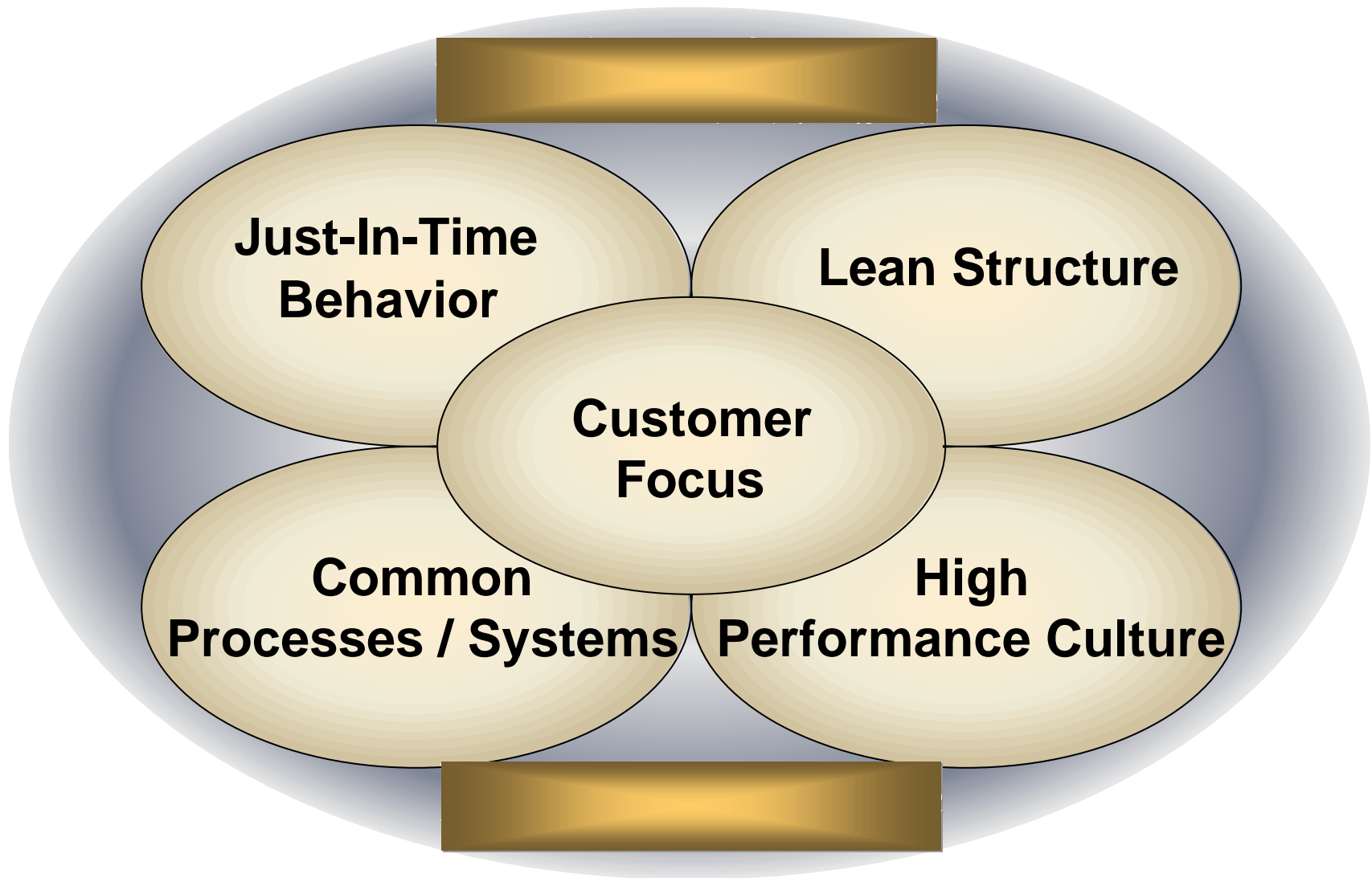
CMMISM Technology and User Group
Hyatt Regency Denver Technical Center
November 14, 2001

NORTHROP GRUMMAN
Integrated Systems

Our Environment Has Changed

- Defense Budget Shrank – Now It Is Slowly Growing
- Reduced Number of US Aerospace Companies
- Product Variability Low
- Product Introduction and Volume Low
- Basis of Competition Changing Again
 - Technology to Price to Best Value
- Opportunity for Differentiation Now in Process
Technology & Productivity
- Growing Interest in Lean by DoD – Need More Involvement

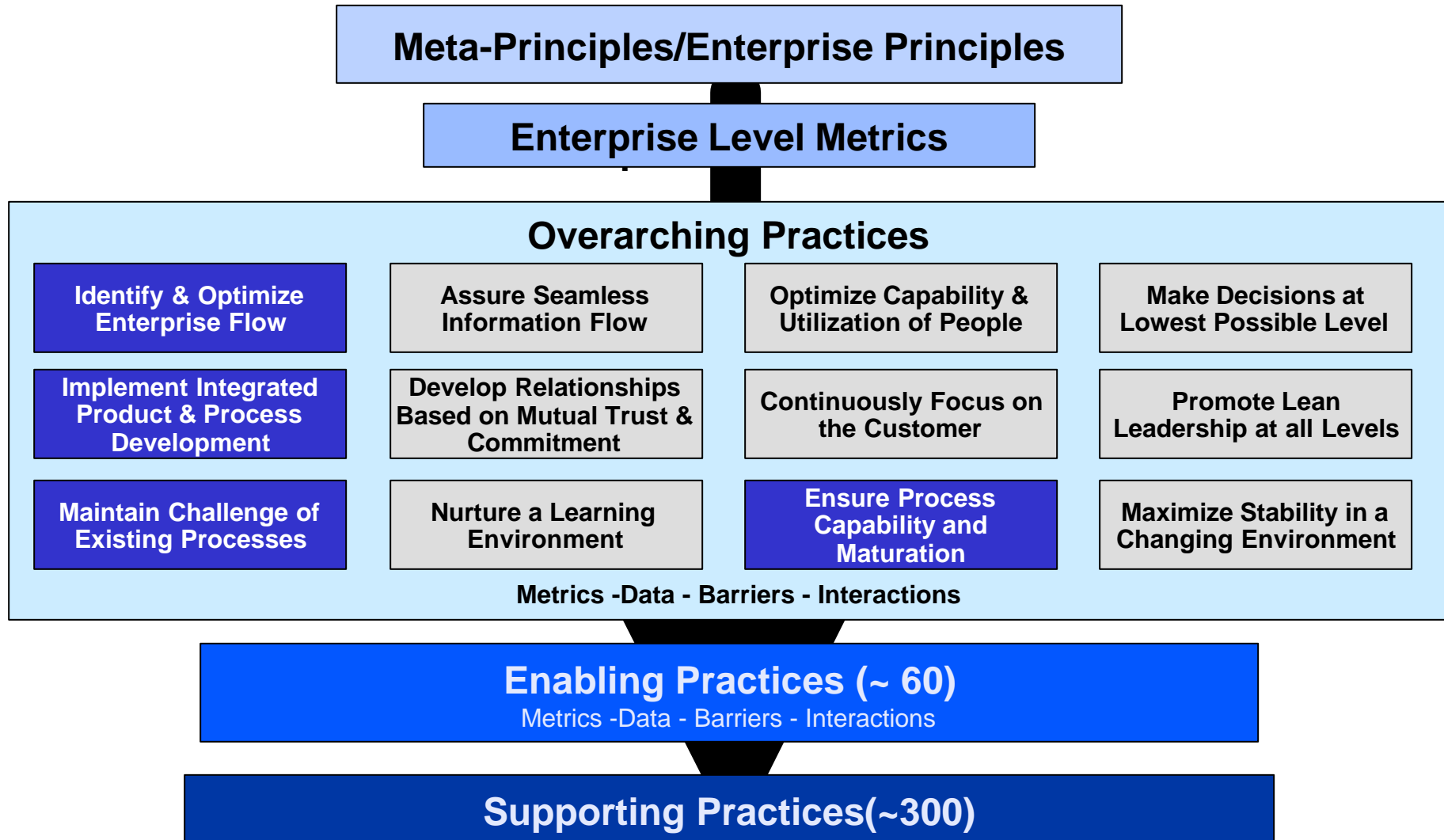
ISS Lean Enterprise System



Lean & CMMI

- **Lean Enterprise Requires Process Excellence and a Culture of Continuous Improvement**
- **CMMI Is About Process Excellence and Would Greatly Enable a Lean Enterprise If It Helped Manage 100% of an Enterprise's Processes**

The LAI Lean Enterprise Model (LEM)



Our Future State – An Integrated Systems Operating Model

Strategic Plan

As a premier aerospace & defense systems integration enterprise with the capabilities to design, produce and support fully missionized integrated systems and subsystems, we will satisfy a full array of customer needs in: AEW/EWS, AGS/BMS, ACS, with a focus on integrating these systems within 21st century network-centric warfighting regime.

Culture

- **Customer Focus**
 - NGC Values
 - Continuous Improvement
 - WEV Focused
- Flexible / Adaptable
- Draw Off Legacy Skills
 - Focused on Change
 - Brand Loyalty
- NG Synergy Focused
- New Business Sensitive

Systems

- Process Driven System
- Minimal Number of Systems
- Common Systems When Possible
 - Supportive of Processes
 - People Focused/Simple
 - Customer Focused
 - Shared Data Warehouses
- Web-Centric Where Applicable
- Able to be Used at Any Location

Infrastructure

- **JIT Principles**
- Common Web Portal Standards
- Excellent Work Environment
- e-Business Standards
- Enabled Collaboration Tools for Everyone

People

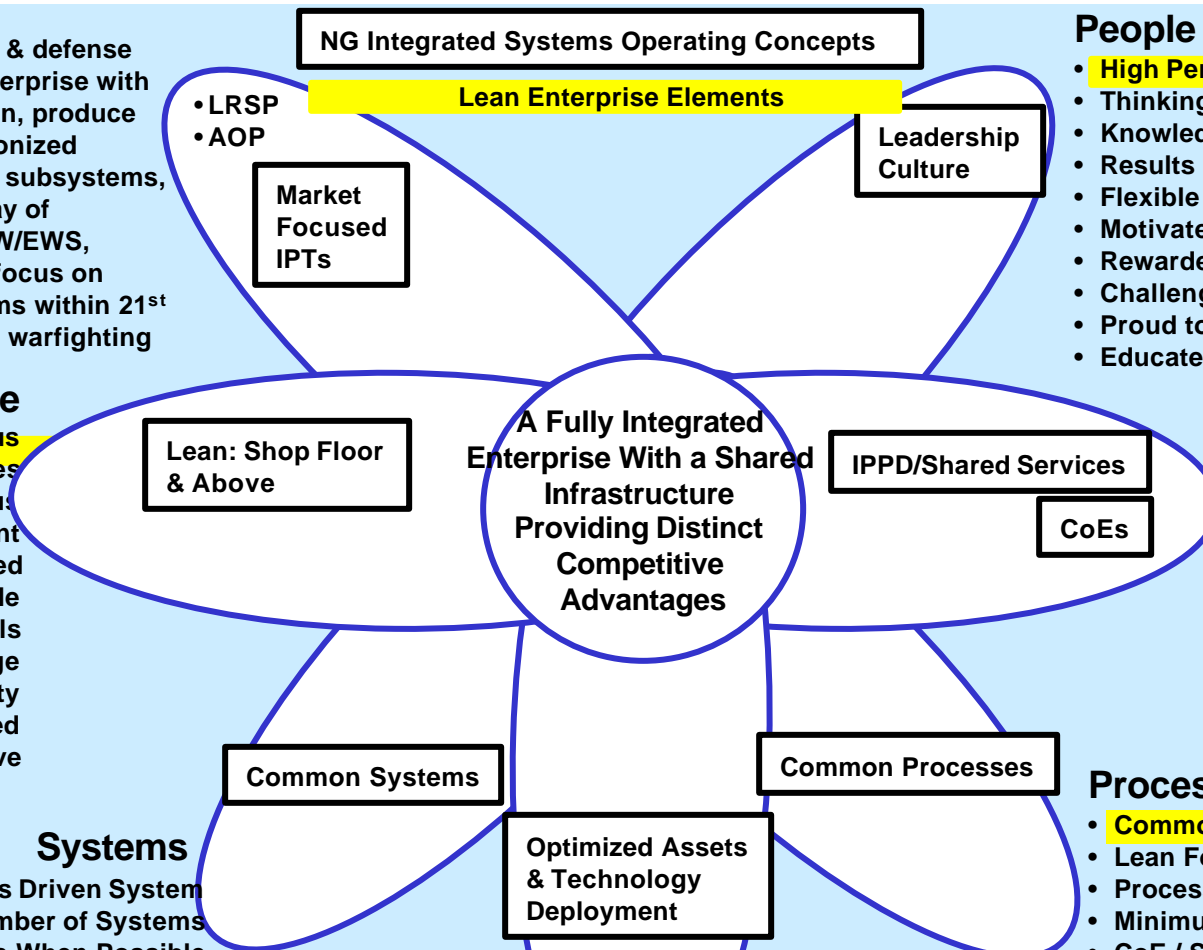
- **High Performance Culture**
- Thinking Lean
- Knowledge Sharing
- Results Sharing
- Flexible
- Motivated / Happy
- Rewarded / Recognized
- Challenged
- Proud to Be NG IS
- Educated / Trained

Organization

- **Lean Structure & Behavior**
- Shared Services
- Strong CoEs
- IPTs / BAs
- Matrix Management
- Horizontally Integrated
- Learning Emphasized

Processes

- **Common Processes / Systems**
- Lean Focused
- Process Architecture
- Minimum Command Media
- CoE / SS Owned/Driven
- Facilities/Sites Process Capable



Our Need for Assessment

- **Why**

- **Needed a Tool to Measure Progress**
- **Needed to Focus More on the “Real” Roadmap to Move Us to a Lean Enterprise System**
- **Needed a Way to Integrate Processes, Systems, Cash and People With VSM Efforts**

- **Purpose**

- **Assess Current State Against Lean Enterprise System**
- **Define Future State/gaps and Align Tactics**
- **Translate Lean Strategy Into Operational Plans and Goals**

LAI - What Is LESAT?

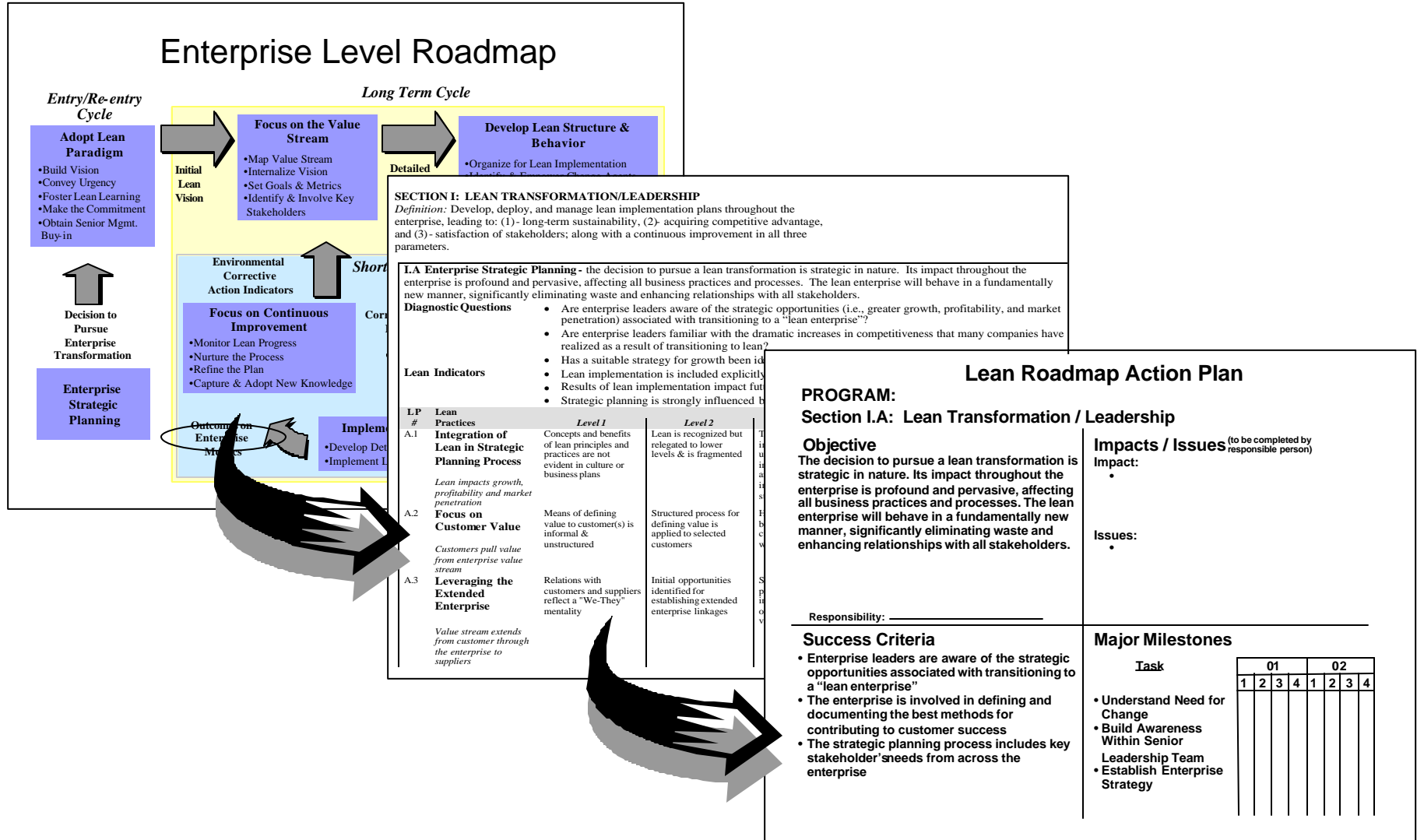


- A Tool for Self-Assessing the Present State of “Leanness” of an Enterprise and Its Readiness to Change
- Comprised Of:
 - Capability Maturity Model for Enterprise Leadership, Life Cycle and Enabling Processes
 - Supporting Materials: (Instructions Manual, Scoring Guide, Etc.)

Overall Approach

<u>Practice</u>	<u>Assessment</u>		<u>Management</u>	
TTL Roadmap	LESAT Section I		Gap Closure Plans	
			Roadmap	
Integrated Systems Lean Enterprise System	LESAT Section II/III	Value Stream Maps	VSM Plan	Gap Closure Plans
	Operational Metrics	Process Assessment	Integrated Schedule	

Strategic Approach - Overview



LESAT Section I - Gap Plan

<p>PROGRAM: Global Hawk</p> <p>Section I.B: Adopt Lean Paradigm</p> <p>Objective</p> <p>Transitioning to lean requires a significant modification to the business model of the enterprise into the lean enterprise required to create a vision for doing business, behaving and seeing value in fundamentally different ways.</p> <p>LESAT Description Section I</p> <p>Responsibility: _____</p>	<p>Impacts / Issues (to be completed by responsible person)</p> <p>Impact:</p> <ul style="list-style-type: none"> <p>Issues:</p> <ul style="list-style-type: none"> <p>Program Specific</p>																																																														
<p>Success Criteria</p> <ul style="list-style-type: none">• Leadership applies and promotes lean learning throughout the program• Lean is integral in all aspects of enterprise transition• The urgent and compelling case for lean has been communicated and the organization rallies behind it <p>LESAT Capabilities Level 1 - 5</p>	<p>Major Milestones</p> <table border="1"><thead><tr><th rowspan="2">Task</th><th colspan="4">01</th><th colspan="4">02</th></tr><tr><th>1</th><th>2</th><th>3</th><th>4</th><th>1</th><th>2</th><th>3</th><th>4</th></tr></thead><tbody><tr><td>• Build Vision</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>• Establish M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>• Foster Lean Learning</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>• Make the Commitment</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>• Obtain Senior Management Buy -In</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> <p>Transition to Lean Roadmap</p>	Task	01				02				1	2	3	4	1	2	3	4	• Build Vision									• Establish M									• Foster Lean Learning									• Make the Commitment									• Obtain Senior Management Buy -In								
Task	01				02																																																										
	1	2	3	4	1	2	3	4																																																							
• Build Vision																																																															
• Establish M																																																															
• Foster Lean Learning																																																															
• Make the Commitment																																																															
• Obtain Senior Management Buy -In																																																															

Conclusion

- **Lean Requires Process Excellence**
- **LESAT Is an Aid But Not Process Specific – It's Intent Is to Assess Lean Culture, Not Individual Processes**
- **CMMI Could Provide the Link to Manage Process Maturity and Performance Across an Enterprise**